

Memorandum for Doctor Clark:

Subject: Statistical Analysis of Syphilitic Demonstrations in Six Communities.

In six communities in which the syphilitic demonstrations were conducted there were 33,234 negroes examined and 5,905 or 178 per 1,000 negroes were found to have a positive blood test and given treatment. In the several communities the percentage of syphilitics based on the positive blood tests for spirocheta pallida ranged from 90 per 1,000 in Albemarle County, Virginia, to 380 per 1,000 in that part of Macon County, Alabama, which was studied.

An effort was made to determine whether the high syphilis rate in some communities was the result of recent infections. For this purpose the cases were divided between those who on admission to treatment under this survey had an early infection, a late infection or had had their infection since birth.

In Albemarle County, Virginia, where the syphilis rate for this cumulative treatment load was lowest the percentage of early infections was high, whereas, in Macon County, Alabama, where the highest rate prevailed, early syphilis cases formed a very small percentage of the cases found in that county. This relationship of high percentage of early infections with low case rates does not follow consistently throughout the six counties, but the trend is in that direction - these data certainly suggest that proportionately the more cases of fresh infections brought to treatment the lower the case rate for syphilis in a community. Probably one of the most striking differences in the proportion of those negroes under treatment or observation and those who are actually infected is that of the distribution of the cases in the two groups by stage of infection. Obviously, the late cases of syphilis

in a practically untreated community will always form a greater percentage of the syphilitic load, due not only to the persistency of the positive blood Wassermann reaction in untreated syphilis but also to the short duration of the manifestations of early syphilis as compared with the almost life span of those of late or latent syphilis. Probably nothing gives so clear cut a picture of the dormancy of a large number of syphilitic infections after their early stage as does a comparison of the number of patients constantly under treatment or observation as of any one day, with the number who may be found through a routine Wassermann of the population of a community.

The prevalence rate per 1,000 negro population was 7.2 as determined through a one-day census taken of negroes under treatment or observation for syphilitic infections in a large part of the States of Mississippi, Virginia, Tennessee, and in the City of Saint Louis and its five contiguous counties. This census was made through reports from physicians, hospitals, clinics and other institutions treating the syphilitic. The rate is based on the reports from all sources of treatment of 1,192,800 of the negro population of these States. Undoubtedly the rate of 7.2 per 1,000 negro population is a fair index of those persons who are under treatment or observation for syphilis at any one time, whereas, the actual number of negro syphilitics diagnosed by a blood test for the spirochete of pallida in these demonstration surveys is 178 persons per 1,000 - that is, approximately 25 times as many of the negro population are or have been infected and have not subsequently attained a permanent reversal of the blood Wassermann reaction to negative, as are under treatment or observation for their infection. In other words, for every syphilitic negro that is under treatment or observation there are 25 negroes with syphilis who are not under treatment or observation.

However, as was indicated above, the proportionate difference in the stage of the disease in the two surveys is most significant. In those cases where the disease is in the early stages the routine blood Wassermann test revealed 6 negroes per 1,000 as compared with 2.4 who were reported under treatment or observation in the one-day census. While these two rates for late and latent syphilis were very different, the routine blood test rate being 171 per 1,000 as compared to 5 per 1,000 of those actually under observation or treatment for late or latent syphilis in the one-day census.

In the early syphilis group the routine blood tests show only two and one-half times those that were reported under treatment or observation in the one day census, while the late or latent syphilis group revealed more than 34 times as many cases respectively.

In making these comparisons the case rates established by the routine blood Wassermanns of the community should be considered as including cases in the community who presented themselves for treatment after the initial Wassermann tests were made, the rates to that extent are inflated the difference in the two being 10 cases per 1,000 population, whereas the rates are exclusive of ^{cases} found to be positive who did not accept treatment, which fact deflates the rate, the difference being 27 cases per 1,000. Therefore it is assumed that these rates used for comparative purposes are satisfactory.

Let us consider further the differences in the case rates for syphilis in the respective counties. We find that in Pitt County, North Carolina, and in Albemarle County, Virginia, the lowest rates prevail. This low rate is probably largely due to the fact that in these two counties syphilis clinics have been operating for a considerable period of time, whereas, in each of the other four counties the clinics in which these demonstrations were carried out were simply temporary ones. From the rates shown in table No. 1, it would

appear to be possible to reduce the prevalence of this syphilis by at least
50 per cent if it were possible to maintain permanent clinics in these countries.

Throughout these surveys it was found that the proportion of female syphilitic negroes is considerably higher than the males, which finding is the reverse of that existing in the prevalence survey of 1,192,300 negro persons in which the rate for the negro males was 20 per cent higher than for the females. Thus it appears that the negro male seeks treatment for his syphilis more than does the negro female, since the testing of the blood indicates that among the females there is at least as much if not more syphilis present. The cryptic nature of the primary lesion in the female probably explains to some extent the proportionately larger number of infected males seeking treatment than females and offers one of the best arguments in favor of performing routine blood Wassermann tests on pregnant women. It also explains the very high percentage of congenital lues existing in these more or less untreated individuals. In fact, of the total patient for whom the time of infection was ascertained, 28 per cent are reported as being congenital.

It is interesting to note that in Macon County this percentage was 62 per cent, whereas, in Glynn County only 1 per cent are reported as congenital syphilitics. Since the tremendous disparity in the percentages of congenital syphilis in these two counties cannot be accounted for, one hesitates to place too much confidence in the reports by stage of the disease on admission.

From a tabulation of marital status at the time of admission to treatment for syphilis it was found that the percentage of cases that occurred among unmarried individuals was approximately the same for the two sexes.

In approximately 50 per cent of the cases the duration of the disease on admission was known. This duration was quite similar for the two sexes. Approximately 25 per cent of the syphilitics had had the disease for only one year,, whereas 62 per cent had the disease for four years or longer at the time of reporting to the clinic for treatment. Probably because of

this long duration of the disease it was found difficult to really effect even a permanent reversal of the blood Wassermann reaction although a considerable average amount of treatment was administered in each of the communities.

The general scheme of treatment which was used was on the plan of one injection of arsphenamine a week for a period of two months with simultaneous heavy metal treatment in the form of mercurettes worn in belts, during the ~~next~~ ^{third} month a continuation of this mercury medication with a discontinuance of the arsphenamine, during the 4th month a weekly injection of arsphenamine with a discontinuance of mercury, the 5th month discontinue the arsphenamine and renew the mercury treatment; a complete rest interval during the 6th month from all types of medication, continuing in the 7th month with arsphenamine only; the 8th month with mercury only and a second rest interval during the 10th month, and a continuation of mercury medication only, during the 11th and 12th months. This scheme of treatment was fairly consistently carried out as a whole, the patients offering more than an average amount of cooperation. Throughout this period it was planned that 5 Wassermanns would be taken, one at the beginning, one at the end of the 3rd month, one at the end of the 6th month, the 9th and the 12th months, and an urinalysis once a month. The total amount of treatment which it was hoped to administer was 20 injections of arsphenamine and 192 mercury rubs. As a whole, 40 per cent of this amount of medication was administered on an average to each patient with syphilis, that is each patient averaged 8.4 doses of neoarsphenamine and 72.6 rubs of mercury. In some of the counties more success was met with than in others as will be shown in Table No. 2; for example Bolivar County patients received an average of 13 doses of neoarsphenamine whereas, in Macon County only an average of 4 doses were given, however, in Macon County the highest percentage of mercury was given.

(Insert Table 2.)

RELAPSE

Recent studies in early syphilis have revealed that 4 doses of arsphenamine given concurrently with heavy metal are not effective in preventing relapse but a fair degree of success is obtained with 8 or 9 doses of arsphenamine. The study referred only to early cases of syphilis and therefore is not directly applicable to the present survey, however, since our present knowledge leads us to believe that the greatest infectiousness in syphilis occurs in the early stages, it is felt that medication in these surveys where most of the cases were not infectious should have been fairly adequate.

(Insert Table 3).

Amount of Arsenical Treatment Given.

Let us consider the amount of treatment in more detail, especially with regard to arsenicals; as will be seen in table 3, above, a grouping of the doses into what may be spoken of as courses of treatment gives a much more complete and true picture of the amount of treatment given than does a purely arithmetical average as is given in table 2, for example, 32 per cent of the patients in practically every county received 1 to 7, which means that 68 per cent of them must have received more than one course or 7 or more doses of arsphenamine treatment. Since we know that the critical point for a large proportion of early syphilis with respect to prevention of potentially infectious relapse lies between the 5th and the 9th arsphenamine injection, we may feel reasonably certain that much has been accomplished from the public health angle of control in this group of patients.

In Macon County where the average treatment shows poorly, quite a different showing is made when the treatment is analyzed in detail. This County has the highest percentage of cases that received 15 or more doses of arsphenamine of any of the communities surveyed.

On studying the amount of arsphenamine treatment given concurrently with heavy metal treatment, a yardstick of treatment was set up whereby if a patient received less than 15 doses of arsphenamine and less than 15 mercury rubs, he was considered to have had "Little, Little," treatment, and if he received more than this amount he was considered to have had "Much, Much", treatment. In the several counties, there was quite a difference in the number of cases that fell in these two categories, for instance, in Macon County and in Tipton County approximately 50 per cent received "Much, Much", treatment, whereas, in the other four counties - Bolivar, Glynn, Pitt and Albemarle, approximately 20 to 25 per cent received "Much, Much", treatment.

(Insert Table No. 4.)

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Factors Influencing the Reversal of the Blood
Wassermann Reaction.

Several studies were made in an effort to determine the effect of certain factors in the prevention of the permanent reversal of the blood Wassermann reaction. These factors were the stage of syphilis at which treatment began, the age of the patient on admission to treatment, and the amount of treatment given. There was a surprisingly high percentage of patients in whom the blood Wassermann remained positive, 60.7 per cent, and also a considerable number who had a serological relapse on termination of treatment, - these numbered 6 per cent of the total. There were 9 per cent of the patients who had delayed reversals, that is, the blood Wassermann reaction failed to reverse in less than 12 months; thus we have only 25 per cent of the cases in which the blood Wassermann reaction reversed with any degree of satisfaction in the total 5006 cases under study.

In determining the influence of the stage of the disease at which treatment began, it was found that in this group of cases there appeared to be very little difference in the percentage of fixed positives and delayed reversals among the early and among the late cases. We have no explanation of this and while it was thought it might be that the blood tests might have been too infrequently taken, and that some patients might appear with a positive Wassermann at the beginning of treatment and fail to have sufficient subsequent tests made to determine the actual change in the blood, this was not found to be the case. In only one county was this factor found to have any bearing, that was in Bolivar County, where 18 per cent of the total cases had only one blood test which was at the beginning of treatment. However, this county has not by any means the highest number of fixed positives. In the other counties the cases which had had only one blood test formed 1

or 2 per cent of the total cases, with the exception of Albemarle County which had 9 per cent and in this instance the fixed positives were very high, being 73.4 per cent of the total.

The age of the patient on admission to treatment does not appear to effect the reversal of the rate of the blood Wassermann reaction.

The influence of the amount of treatment on the reversal of the blood Wassermann reaction was studied and it was found that of all those cases whose tests were always positive 17 per cent had had no arsphenamine treatment and 46 per cent had had less than 7 doses of arsphenamine. Obviously this factor has some influence on the rate of the reversal of the blood Wassermann reaction but does not wholly account of the low rate of reversal.

(Insert Table No. 5.)

Complications of Treatment.

From a tabulation of the treatment reactions it was found that among the total patients under treatment for syphilis, 12.5 per cent experienced a complication. The highest percentage of complications occurred between the 1st and 10th doses of neoarsphenamine and then tapered off up to the 25th dose. There were too few patients who received more than 25 doses of arsphenamine to be subjected to analysis. The complications occurring most frequently were in the order named: gastrointestinal, slight, 4.0 per cent, slight skin eruption, 3.2 per cent, dermatitis, 2.5 per cent, gastrointestinal, severe, 1.5 per cent, local reaction, 1.0 per cent. Each of the other treatment reactions were found in less than 1 per cent of the cases treated. Among the total 634 cases who experienced a complication of treatment there were 393 treatment reactions found.

(Insert Table No. 6)

COMPLICATIONS OF TREATMENT.

From a tabulation of the treatment reactions it was found that among the total patients under treatment for syphilis, 12.5 per cent experienced a complication. The highest percentage of complications occurred between the 1st and 10th doses of neocarsphenamine and then tapered off up to the 25th dose. There were too few patients who received more than 25 doses of arsphenamine to be subjected to analysis. The complications occurring most frequently were in the order named; gastrointestinal, slight, 4.0 per cent, slight skin eruption, 3.2 per cent, dermatitis, 2.5 per cent, gastrointestinal, severe, 1.5 per cent, local reaction 1.0 per cent. Each of the other treatment reactions were found in less than 1 per cent of the cases treated. Among the total 634 cases who experienced a complication of treatment there were 893 treatment reactions found.

(Insert Table No. 5)

URINALYSIS

In 758 tests which were made on the urine throughout treatment the albumin was found positive in 69 per cent of the tests. There were casts in 33 per cent of them, while bile was in 8 per cent. Urinalyses were not made on every case. The percentage of positives in urinalysis cannot be taken as meaning that in any number of routine tests of this type we would expect to find this percentage of positives. The urinalysis was made principally when some treatment damage of the kidney was suspected. The percentages simply indicate that albumin is found twice as frequently as casts, and ten times as frequently as bile in the urine of an individual under arsphenamine treatment.

(Insert Table 7).

DEATHS

In the total 5905 cases there were 57 deaths, or approximately 1 per cent. Although there were very few autopsies performed, it can be said that in only a very few cases did the syphilis or the treatment thereof have much to do with the death. Several cases of heart condition, especially those of aortitis, may be said to be of syphilitic origin. There is one case of dermatitis on which the death certificate states that the dermatitis was probably arsenical.

Lida J. Usilton.

7/19/32

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Table I

The rate per thousand of negroes examined who were syphilitic and the stage of syphilis at which treatment began in the six communities under the syphilis demonstrations.

Location	Early Syphilis		Late Syphilis		Congenital Syphilis		Total treated		Total negroes examined	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Macon Co., Ala.	19	5.4	1022	292.5	353	100.4	1400	398.3	3515	100.0
Glynn Co., Ga.	22	3.8	1311	227.0	77	13.3	1410	244.1	5775	100.0
Bolivar Co., Miss.	13	5.0	773	300.0	53	20.6	839	325.6	2577	100.0
Pitt Co., N.Car.	43	4.2	1118	109.6	215	21.1	1376	134.9	10198	100.0
Tipton Co., Tenn.	62	27.0	413	179.6	63	27.4	538	234.0	2299	100.0
Albemarle Co., Va.	47	15.4	207	67.8	88	28.8	742	112.0	3052	100.0
Total	206	7.5	4850	176.9	849	31.0	5905	215.4	27416	100.0

Table No. 2. Total number of doses of neoarsphenamine given, the number of treatments with heavy metal, and the average number of each given per person, in the six counties.

County and State	Number of persons in survey	Doses of neoarsphenamine given		Treatments with heavy metal	
		Total number	Average number per person	Total number	Average number per person
Macon Co., Ala.	1400	5588	4.0	148542	106.1
Glynn Co., Ga.	1410	11527	8.2	84294	59.8
Bolivar Co. Miss.	839	10640	12.7	48200	57.4
Pitt Co. N.C.	1376	12472	9.1	75612	55.0
Tipton Co., Tenn.	538	5902	11.0	49548	92.1
Albemarle Co., Va.	342	3618	10.6	22446	65.6
Six counties	5905	49747	8.4	428642	72.6

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Table 7. Number of doses of arsphenamine administered to syphilitic patients in each community surveyed.

Doses of AS	County and State													
	Macon Co., Bolivar		Glynn		Pitt Co.,		Tipton		Albemarle		Total			
	Alabama	Co., Miss.	Co., Ga.	N. C.	N. C.	Co., Tenn.	Co., Va.							
	Per	Per	Per	Per	Per	Per	Per	Per	Per	Per	Per	Per	Per	
Number	cent	Number	cent	Number	cent	Number	cent	Number	cent	Number	cent	Number	cent	
1-7	314	26.3	264	33.3	425	37.3	447	37.1	91	22.2	90	29.1	1631	32.8
8-14	203	17.1	191	24.1	445	39.1	422	35.0	93	22.7	113	36.6	1469	29.1
15-21	670	56.0	84	10.6	205	18.0	335	27.8	173	42.2	73	23.6	1540	30.5
22-28	7	.6	254	32.0	61	5.4	1	.1	53	12.9	31	10.0	407	8.0
Over 28	-	-	-	-	2	.2	-	--	-	-	2	.7	4	.1
Total	1196*	100.0	793*	100.0	1132*	100.0	1205*	100.0	410*	100.0	309*	100.0	5251*	100.

*Notes for six counties:

- Macon Co., Ala. Exclusive of 204 patients who received no arsphenamine.
- Glynn Co., Ga. Exclusive of 272 patients who received no arsphenamine.
- Bolivar Co., Miss. Exclusive of 46 patients who received no arsphenamine.
- Pitt Co., N. C. Exclusive of 171 patients who received no arsphenamine.
- Tipton Co., Tenn. Exclusive of 127 patients who received no arsphenamine and one who received 9 doses of arsphenamine and an unknown amount of heavy metal.
- Albemarle Co., Va. Exclusive of 33 patients who received no arsphenamine.
- Total Exclusive of the 854 patients enumerated in the notes for the six counties.

Table No. IV Amount of arsphenamine and heavy metal administered to syphilitic patients in each community surveyed.

Amount of treatment (a)	County and State													
	Macon Co., Ala.		Bolivar Co., Miss.		Glynn Co., Ga.		Pitt Co., N.C.		Tipton Co., Tenn.		Albemarle Co., Va.		Total	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Little AS No HM	3	.3	13	1.7	15	1.3	11	.9	3	.7	15	4.8	60	1.2
Little AS Little HM	483	40.8	442	55.7	735	69.9	825	68.5	137	33.4	172	55.7	2859	56.6
Little AS Much HM	28	2.3	-	-	60	5.3	33	2.7	44	10.7	16	5.2	181	3.6
Much AS Little HM	14	1.2	161	20.3	63	5.5	92	7.6	15	3.7	25	8.1	370	7.3
Much AS Much HM	663	55.4	177	22.3	204	17.9	244	20.3	210	51.2	80	25.9	1578	31.2
Much AS No HM	-	-	-	-	1	.1	-	-	1	.3	1	.3	3	.1
Total	1195	100.0	723	100.0	1138	100.0	1205	100.0	410	100.0	309	100.0	5051	100.0

(a) Heavy Metal - Little: 1-14 weeks of rubs or doses of Mercury or Bismuth; 15 or over considered much.

Arsphenamine- Little: 1-14 injections; 15 or over considered much treatment.

*Notes for six counties:

Macon Co., Ala. Exclusive of 204 patients who received no arsphenamine.

Glynn Co., Ga. Exclusive of 272 patients who received no arsphenamine.

Bolivar Co., Miss. Exclusive of 46 patients who received no arsphenamine.

Pitt Co., N.C. Exclusive of 171 patients who received no arsphenamine.

Tipton Co., Tenn. Exclusive of 127 patients who received no arsphenamine and one who received 9 doses of arsphenamine and an unknown amount of heavy metal.

Albemarle Co., Va. Exclusive of 23 patients who received no arsphenamine.

Total - - - Exclusive of the 854 patients enumerated in the notes for the six counties.

Table 1 Influence of stage of syphilis at which treatment began on reversal of blood Wassermann.

Length of time re- quired to reverse blood Wassermann	Diagnosis on admission							
	Lues I and II		Lues III		Lues Congenital		Total	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent

Macon, Alabama.

Always positive	10	62.4	495	57.7	118	40.0	623	53.3
Now positive	1	6.3	104	12.1	32	10.8	137	11.7
Less than 2 months	1	6.3	8	0.9	3	1.0	12	1.0
2-4 months	3	18.7	111	12.9	77	26.1	191	16.3
5-7 months	-	-	42	4.9	22	7.5	64	5.5
8-11 months	1	6.3	33	3.9	18	6.1	52	4.5
12 months or over	-	-	65	7.6	25	8.5	90	7.7
Total	16	100.0	858	100.0	295	100.0	1169	100.0

Glynn, Georgia

Always positive	15	71.4	982	75.1	65	85.6	1042	75.8
Now positive	1	4.8	45	3.5	2	2.6	48	3.5
Less than 2 months	-	-	31	2.4	2	2.6	33	2.4
2-4 months	4	19.0	107	8.4	-	-	111	8.0
5-7 months	1	4.8	49	3.8	2	2.6	52	3.8
8-11 months	-	-	33	2.6	1	1.3	34	2.5
12 months or over	-	-	34	2.6	4	5.3	38	2.8
Total	21	100.0	1291	100.0	76	100.0	1368	100.0

Polivar, Mississippi

Always positive	5	38.4	393	52.0	34	65.4	432	52.6
Now positive	-	-	1	0.1	-	-	1	0.1
Less than 2 months	-	-	-	-	-	-	-	-
2-4 months	-	-	12	1.6	-	-	12	1.5
5-7 months	2	15.4	70	9.2	4	7.7	76	9.2
8-11 months	2	15.4	55	7.3	2	3.8	59	7.2
12 months or over	4	30.8	225	29.3	12	23.1	241	29.4
Total	13	100.0	756	100.0	52	100.0	821	100.0

Pitt County, North Carolina

Always positive	24	60.0	514	49.8	133	66.9	671	52.8
Now positive	-	-	22	2.1	6	3.0	28	2.2
Less than 2 months	3	10.0	100	9.7	7	3.5	107	8.3
2-4 months	5	12.5	110	10.7	7	3.5	122	9.5
5-7 months	1	2.5	110	10.7	17	8.5	128	10.0
8-11 months	-	-	110	10.7	-	-	110	8.6
12 months or over	-	-	110	10.7	-	-	110	8.6
Total	40	100.0	1036	100.0	163	100.0	1269	100.0

Table I-c, (Continued). Influence of stage of syphilis at which treatment began on reversal of blood Wassermann.

Length of time required to reverse blood Wassermann	Diagnosis on admission							
	Lues I and II		Lues III		Lues Concomitant		Total	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Tipton, Tennessee								
Always positive	57	62.7	253	64.0	42	70.0	352	64.5
Now positive	5	8.5	62	15.7	6	10.0	73	14.2
Less than 2 months	1	1.7	5	1.3	2	3.3	8	1.6
2-4 months	1	1.7	16	4.1	5	8.4	22	4.3
5-7 months	5	8.5	12	3.0	1	1.7	18	3.5
8-11 months	3	5.1	19	4.8	2	3.3	24	4.7
12 months or over	7	11.8	28	7.1	2	3.3	37	7.2
Total	59	100.0	394	100.0	60	100.0	513*	100.0
Albemarle, Virginia.								
Always positive	21	67.8	99	72.3	46	79.3	166	73.4
Now Positive	5	16.1	14	10.2	3	5.2	22	9.7
Less than 2 months	1	3.2	9	6.6	6	10.4	16	7.1
2-4 months	-	-	3	2.2	1	1.7	4	1.8
5-7 months	1	3.2	2	1.4	1	1.7	4	1.8
8-11 months	3	9.7	6	4.4	-	-	9	4.0
12 months or over	-	-	4	2.9	1	1.7	5	2.2
Total	31	100.0	137	100.0	58	100.0	226*	100.0
Total - Six Counties								
Always positive	112	62.2	2715	60.9	438	59.2	3265	60.7
Now positive	12	6.6	243	5.6	49	6.6	309	5.7
Less than 2 months	9	5.0	153	3.4	20	2.7	182	3.4
2-4 months	16	8.9	431	9.7	111	15.0	558	10.4
5-7 months	10	5.6	275	6.2	40	5.4	325	6.0
8-11 months	10	5.6	227	5.1	30	4.1	267	5.0
12 months or over	11	6.1	412	9.3	52	7.0	475	9.0
Grand Total	180	100.0	4459	100.0	740	100.0	5379*	100.0

* Notes for the six Counties (continued)

Tipton Co.

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Table No. 6. The treatment of syphilitic patients treated with arsphenamine in the six communities included in the demonstration surveys.

Complications of treatment in order of their predominance	Number of doses of Neocarsphenamine							Total	Per cent
	1-5	6-10	11-15	16-20	21-25	26-30	Over 30		
Gastro-intestinal (slight)	80	63	38	18	4	-	-	203	4.0
Pruritus & slight skin eruption	73	53	22	14	1	-	-	163	3.2
Dermatitis (slight and severe)	35	39	35	16	2	1	-	128	2.5
Gastro-intestinal (severe)	45	17	9	1	2	-	-	74	1.5
Local reaction	16	19	8	4	2	-	-	49	1.0
Nitritoid reaction	14	10	3	2	1	-	-	30	.6
Vein infiltration	6	11	4	1	-	-	-	22	.4
Jaundice	12	3	1	-	-	-	-	16	.3
Ocular damage	3	4	1	-	-	-	-	8	.2
Herrheimer reaction	2	1	-	-	-	-	-	3	.1
Kidney damage	2	4	1	-	-	-	-	7	.1
Hepatitis	1	-	-	-	-	-	-	1	.02
Multiple neuritis	-	-	1	-	-	-	-	1	.02
Total complications	374	283	160	68	17	1	-	893	17.7
Total cases with complications	280	203	102	37	11	1	-	634	12.5
Total cases treated	5052	3852	2651	1835	531	22	1	5052*	100.0
Percentage of cases with complications to cases receiving a specified amount of treatment.	5.5	5.3	3.8	2.0	2.1	4.5	-		12.5

*Exclusive of 853 cases receiving no arsphenamine.

Table No. 7. Frequency of positive tests in 758 urinalyses made in the syphilitic demonstrations.

Number and type of test	Number											
	Male				Female				Total			
	Nega- tive	Posi- tive	Not done	Total	Nega- tive	Posi- tive	Not done	Total	Nega- tive	Posi- tive	Not done	Total
Total, all	All counties*											
Three tests:												
Albumin	95	132	-	324	112	233	2	344	234	523	2	758
Bile	264	22	38	324	315	35	84	434	579	57	122	758
Casts	182	111	31	324	219	141	74	434	401	252	105	758
Per cent												
Albumin	29.3	70.7	-	100.0	32.0	67.5	.5	100.0	30.9	68.9	.2	100.0
Bile	81.5	6.8	11.7	100.0	72.6	8.1	19.3	100.0	76.4	7.5	16.1	100.0
Casts	56.2	34.2	9.6	100.0	50.5	32.5	17.0	100.0	52.9	33.2	13.9	100.0

*This information not available for Tipton County, Tennessee.